AXMINSTER Trade SERIES

Code: **501214**

AT1416VS
Woodturning Lathe

The AW1416VS utilises the very reliable inverter technology usually found on much larger machines

Electronic variable speed is a desirable feature for woodturners, enabling fine tuning of speed to suit larger diameters or out of balance work pieces.

Axminster Tool Centre,
Unit 10 Weycroft Avenue, Axminster, Devon EX13 5PH

www.axminster.co.uk

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Declaration of Conformity

Copied from CE Certificate

The undersigned, authorised by Calvin Chou
The Kingcraft Machinery Company Limited
No. 26 Chung Gong Yeh 12 rd, Da-Li City, Taichung County, Taiwan declares that this product:

Woodturning Lathes

1643INV, 1417, 1643, 1417INV, 1430, 1430INV, 1443, 1443INV, 1643INV

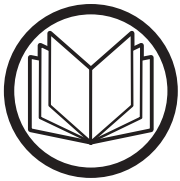
Manufactured by The Kingcraft Machinery Company Limited is in compliance with the following standards or standardisation documents in accordance with Council Directives

Machinery Directive: 2006/42/EC
Low Voltage Directive: 2006/95EC
Electromagnetic Compatibility Directive: 2004/108/EC

Please read the Instruction Manual prior to using your new machine; as well as the operating procedures for your new machine, there are numerous hints and tips to help you to use the machine safely and to maintain its efficiency and prolong its life. Keep this Instruction Manual readily accessible for any others who may also be required to use the machine.

Warning

The symbols below advise that you follow the correct safety procedures when using this machine.



Fully read manual and safety instructions before use

Ear protection should be worn

Eye protection should be worn

Dust mask should be worn

HAZARD Motor gets hot

What's Included

Quantity	Item		Model Number 1417INV
1 No	AT1416VS Woodturning Lathe (Headstock and Tailstock fitted)		
1 No	Tool Rest Arm (Fitted to Lathe Bed)		
1 No	152mm Tool Rest (Fitted to Tool rest Arm)		
1 No	80mm Faceplate (Fitted to Headstock)		
1 No	4 Prong Drive Centre (Fitted to Headstock)	**A**	
1 No	Live Centre (Fitted to Tailstock)	**B**	
Packet Containing			
1 No	Push Rod	**C**	
1 No	8mm Hex Key	**D**	
2 No	Steel Carryng Handles with four 1/4 unc x 5/8" Phillips Screws	**E**	
1 No	24 Index Pin with Magnetic Base	**F**	
2 No	Steel Hooks & (4) Phillips Screws	**G**	
1 No	Instruction Manual		
1 No	Guarantee Card		

Having unpacked your new AT1416VS woodturning lathe please dispose of the unwanted packaging responsibly. The cardboard packaging is biodegradable

Optional Accessories

Quantity	Item	
1 No	Extension Bed (Product code: 951249)	**H**
2 No	5/16" x 1" Caphead Bolts & Spring/washer	**I**

General Instructions for 230V Machines

Good Working Practices/Safety

The following suggestions will enable you to observe good working practices, keep yourself and fellow workers safe and maintain your tools and equipment in good working order.

WARNING! KEEP TOOLS AND EQUIPMENT OUT OF THE REACH OF YOUNG CHILDREN

Primary Precautions

These machines are supplied with a moulded 13 Amp. Plug and 3 core power cable. Before using the machine inspect the cable and the plug to make sure that neither are damaged. If any damage is visible, have the tool inspected/repaired by a suitably qualified person. If it is necessary to replace the plug, it is preferable to use an 'unbreakable' type that will resist damage. Only use a 13 Amp plug, and make sure the cable clamp is tightened securely. Fuse as required. If extension leads are to be used, carry out the same safety checks on them, and ensure that they are correctly rated to safely supply the current that is required for your machine.

Work Place/Environment

Make sure when the machine is placed that it sits firmly on the bench or stand, that it does not rock, that it is sufficiently clear of adjacent obstacles so that you have unimpeded access to all parts of the machine. The machine is designed for indoor use, do not use when or where it is liable to get wet. Keep the machine clean; it will enable you to more easily see any damage that may have occurred.

Clean the overall machine with a damp soapy cloth if needs be, do not use any solvents or cleaners, as these may cause damage to any plastic parts or to the electrical components. Clean the machine components with a lightly oiled cloth. If the machine is liable to be standing idle for any length of time a light coat of machine or spray oil will minimise rusting.

Keep the work area as uncluttered as is practical, this includes personnel as well as material. Under no circumstances should CHILDREN be allowed in work areas.

It is good practice to leave the machine unplugged until work is about to commence, also make sure to unplug the machine when it is not in use, or unattended. Always disconnect by pulling on the plug body and not the cable. Once you are ready to commence work, remove all tools used in the setting operations (if any) and place safely out of the way. Re-connect the machine.
Carry out a final "tightness" check e.g. chuck or face plate, work piece, tool rest, etc., check that the correct speed has been selected.

General Instructions for 230V Machines

Make sure you are comfortable before you start work, balanced, not reaching etc.

If the work you are carrying out is liable to generate flying grit, dust or chips, wear the appropriate safety clothing, goggles, gloves, masks etc. If the work operation appears to be excessively noisy, wear ear-defenders. If you wear your hair in a long style, wearing a cap, safety helmet, hairnet, even a sweatband, will minimise the possibility of your hair being caught up in the rotating parts of the tool, likewise, consideration should be given to the removal of rings and wristwatches, if these are liable to be a 'snag' hazard. Consideration should also be given to non-slip footwear, etc.

DO NOT work with cutting tools of any description if you are tired, your attention is wandering or you are being subjected to distraction. A deep cut, a lost fingertip or worse; is not worth it! Above all, **OBSERVE….** make sure you know what is happening around you, and **USE YOUR COMMON SENSE.**

Specific Safety Instructions for Woodturning Lathes

1. Do not use 'split' work pieces.

2. Always start at the lowest speed when starting a new task.

3. Check that the tool rest is at or slightly below the centre line of the workpiece.

4. Check the work piece is securely mounted in the lathe before switching on the power.

5. Rotate the work piece by hand, to check that it is centralised, clear of the tool rest, not 'split' or has loose knots.

6. Where lathes have the facility to be reversed; check the machine is rotating in the correct direction.

7. If your lathe has the facility to run in reverse, you must ensure that the mounting accessories (chucks, faceplates etc.,) can be 'locked' onto the lathe mandrel, and in the case of chucks have some form of security device to prevent them 'unwinding' during reverse operation.

8. Make sure your tools are stored/racked away from the turning area of the lathe. Do not reach over a rotating work piece at any time.

9. Do not 'dig in' or try to take too large a cut.

10. Do not leave the lathe running unattended; or leave the machine until everything is stopped.

11. Some turning tools may have specific sharpening angles that have been determined by the manufacturers; when re-sharpening, adhere to these angles to maximise the finish of your work.

Specification

Product Code	501214
Model	AT1416VS
Rating	Trade
Power	230V 50Hz 560W
Speed	0-800, 200-1,750, 400-3,600rpm
Spindle Taper	2MT
Spindle Thread	M33 x 3.5mm (Ref T38)
Taper Tailstock	2MT
Distance Between Centres	400mm
Max Diameter over Bed	350mm
Tool Rest Stem Diameter	25.4mm
Overall L x W x H	865 x 330 x 415mm (With Extension Bed: 1,465 x 330 x 415mm)
Weight	41kg

Assembly Instructions

Please take some time to read the section entitled "Illustration & Parts Description" to identify the various parts of your machine so that you are familiar with the terminology we will use to enable you to set up and operate your table lathe safely and correctly.

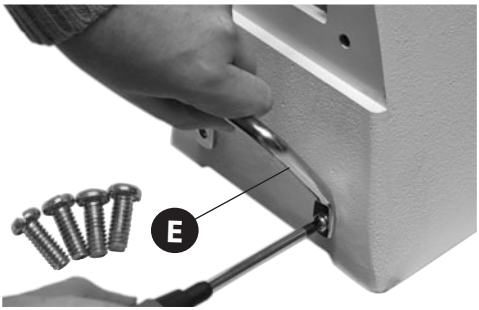
The machine and its accessories will arrive coated with corrosion preventative grease. This will need to be cleaned from the machine, its components and accessories prior to it being set up and commissioned. Use coal oil, paraffin or a proprietary de greaser to remove the barrier grease. Be warned, it will stain if you splash it on clothing etc., wear overalls, coverall et al., rubber gloves are also a good idea, as is eye protection if your cleaning process tends to be a little bit enthusiastic. After cleaning, lightly coat the machine with a thin layer of light machine oil. N.B If you used paraffin/kerosene make sure you apply this thin film sooner rather than later.

95% of the machine comes fully assembled, (See what's included) to assemble the remaining 5% please follow the instructions below.

Assembling the Carrying handles

Locate the two steel carrying handles **(E)** and the four 1/4 unc x 5/8" Phillips screws, attach them to each end of the lathe bed (See figure 1).

Figure 01



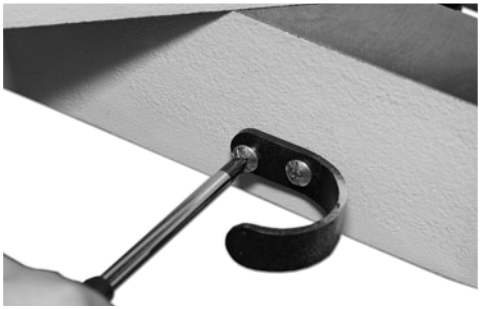
Assembling the Power Cable Hooks

Locate the two steel hooks & Phillips screws **(G)** and screw them with the hooks facing inwards, into the pre-drilled holes in the lathe bed. (See figures 2-3-4)

Figure 02

Pre-drilled holes in lathe bed casting

Figure 03



Steel hook

Figure 04

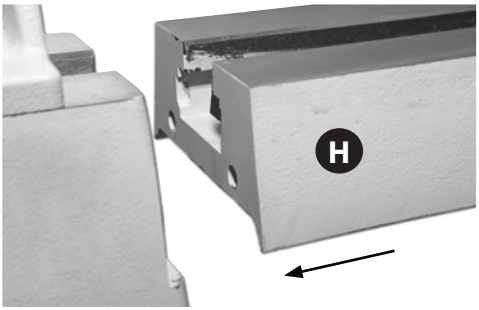
Steel hooks in position

Attaching the Optional Extension Bed (951249)

Figure 05

Step 1: Remove the carrying handle from the end of lathe bed and place safely aside

Figure 06



Step 2: Line-up the pre-drilled holes in the extension bed **(H)** with the holes in the lathe

Figure 07

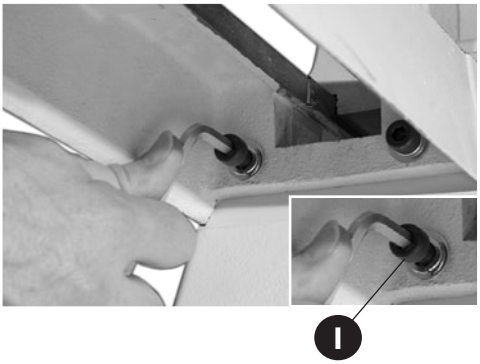
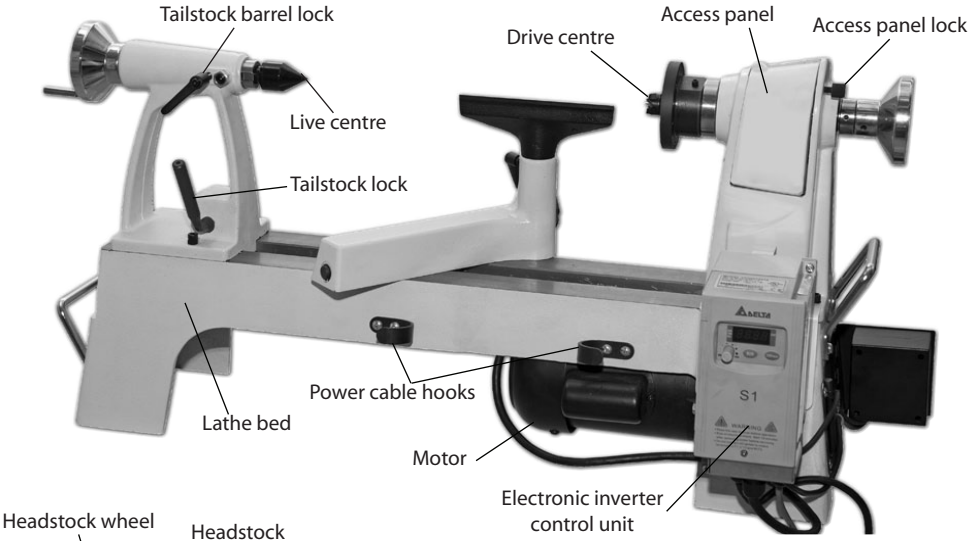


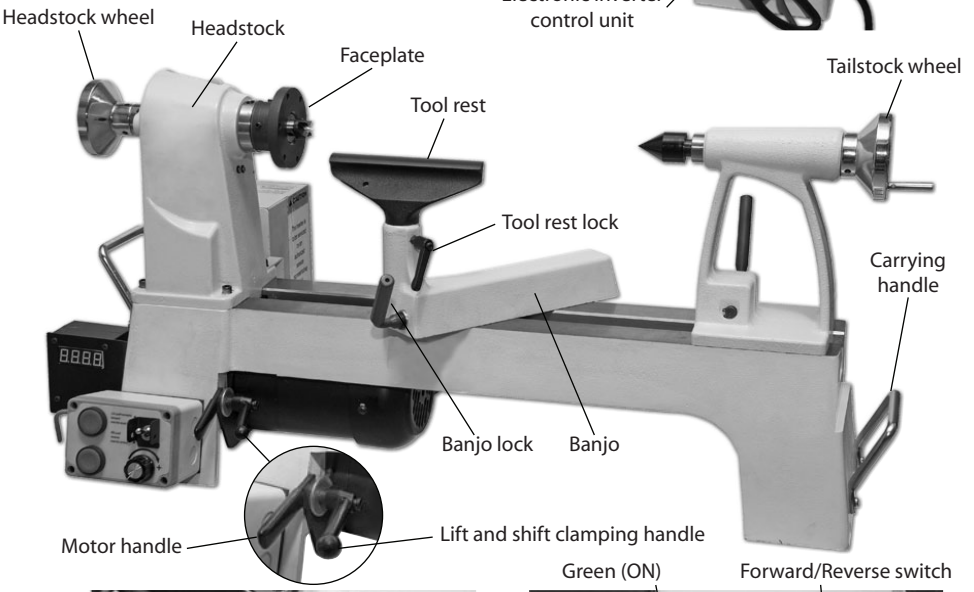
Figure 08

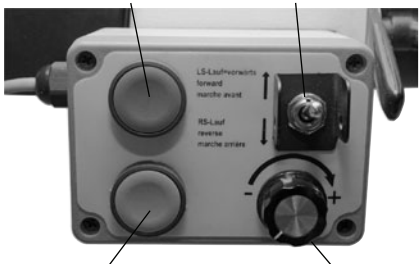
Step 3: Locate the two 5/16 unc x 1" caphead bolts and spring/washers **(I)**, Slot them through the holes in the extension bed **(H)** & lightly screw them into the lathe bed, using a Hex key. Clamp the tailstock over the two beds and adjust until both beds are aligned then tighten the bolts, **(DO NOT OVERTIGHTEN)**. (See figures 7-8) Replace the carrying handle **(E)** and screws to the end of the extension bed **(H)**.

AT1416VS Lathe Extension Bed

Illustration and Description







Electronic Inverter Control Unit

General Purpose AC Micro Drive from "Delta Electronics". The VFD-S drive is famous for its low noise carrier frequency feature and easy to use keypad. The digital keypad comes in two parts; the display panel and keypad. The display provides the parameter display and shows operation status of the AC drive. The keypad provides programming interface between the user and the AC drive. For more information see manufacturer's manual.

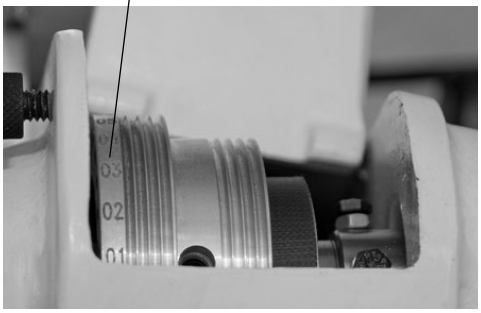
Note: The inverter comes preset from the factory and you should not need to make any adjustments.

Indexing Operation

The indexing facility is useful for fluted columns, clock faces and accurate hole positioning. The indexing pulley has 24 positions (15°) indexing using the supplied index pin **(F)**.

Figure 09

Figure 10



Open the access panel, turn the headstock wheel until the pre-drilled hole in the headstock lines up with one of the 24 pre-drilled hole positions on the index pulley. (See figs 9-10-11)

Figure 11

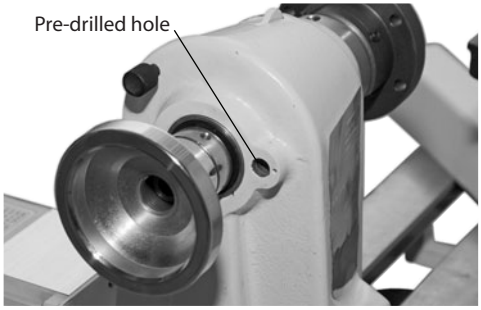
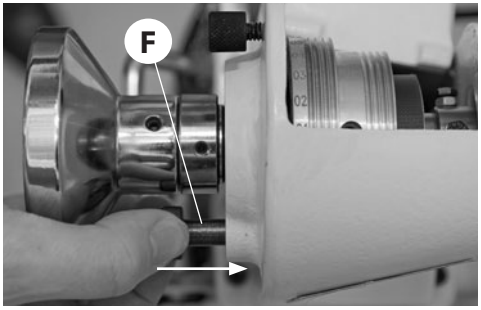
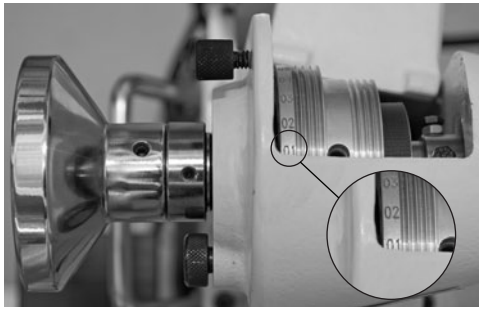


Figure 12



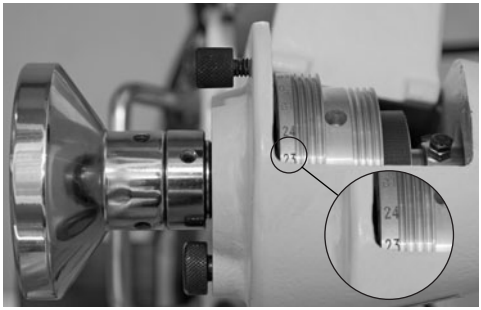
Locate the 24 index pin **(F)** and slide the pin into the pre-drilled holes to lock the pulley to the desired position

Figure 13



The picture above shows the index number is set to position 01

Figure 14



The picture above shows the index number is set to position 23

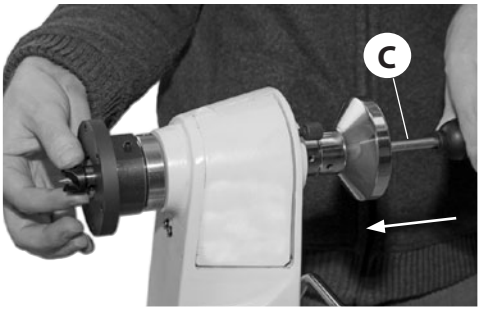
Note: The index pin (F) has a magnetic base, enabling the pin to be attached to the lathe to prevent it from being lost.

To remove the Drive Centre **(A)**, locate the push rod **(C)**, while holding the tool insert the push rod **(C)** through the centre hole of the headstock wheel and push the drive centre out. (See figs 15-16-17) Repeat the procedure for the Live Centre in the tailstock. (See fig 18)

Figure 15

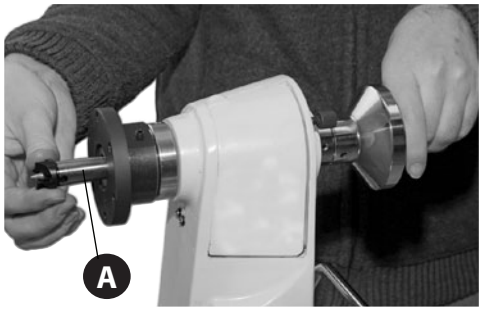
Centre hole in the headstock operating wheel

Figure 16



Insert the push rod **(C)** through the headstock and push the drive centre out

Figure 17



Removing the drive centre

Figure 18

Live centre in tailstock

Changing the Belt Speed

Note. The lowest speed pulley combination is furthest from the faceplate, i.e. smallest motor pulley diameter to largest spindle pulley diameter.

DISCONNECT THE LATHE FROM THE MAINS SUPPLY!

Lower the access panel **(A)** on the headstock by loosening the access panel lock caphead screw **(B)**, using a Hex key. (See figs 19 & 20) Open the motor access door **(C)**, by pulling the spindle speed LED box towards you. (See fig 21) Loosen the motor's lift & shift handle, see fig 23, lift the motor plate handle to give enough slack in the belt to enable it to be moved to the new selection.

When the belt is located, turn the spindle to ensure the belt is correctly seated. Check that the belt is vertical, the belt must not be run out of vertical alignment, this can cause the belt to 'jump' the pulley grooves, possibly the wrong way, and if it does manage to run, it will scuff the sides of the belt badly). When you are sure all is correct, press down on the motor plate handle to put tension on the belt.

Note: The belt does not need to be bar taut to operate correctly.

Continues Over...

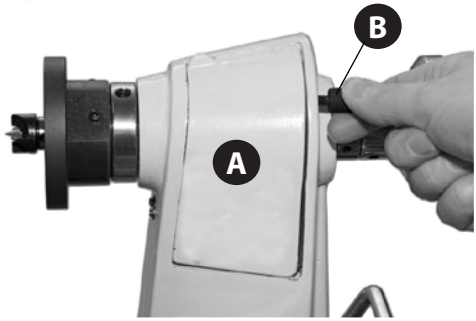
Changing the Belt Speed

Tighten the lift and shift handle to hold the motor plate in position. Replace the access panel **(A)** and tighten the caphead screw **(B)** and close the motor access door **(C)**.

Reconnect the machine to the mains supply. Give the lathe a little 'burst' to check it all runs smoothly.

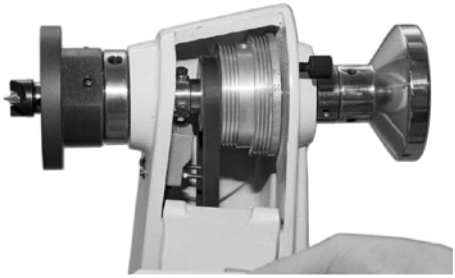
When you are satisfied, remove any tools you may have been using; stow carefully away, the lathe is now ready to be used again.

Figure 19



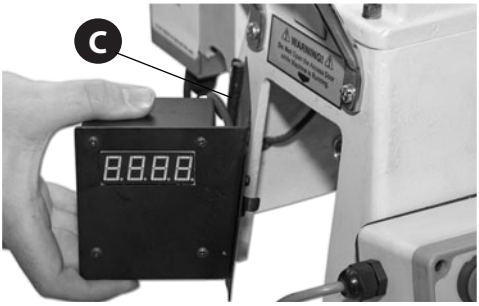
Loosen the access panel caphead screw **(B)** using a Hex key.

Figure 20



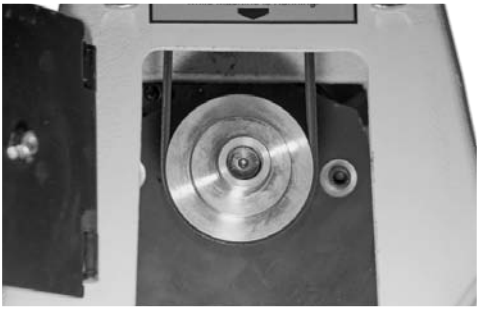
Lower the access panel to give access to the spindle pulley

Figure 21



Open the motor access door **(C)**, by pulling the spindle speed LED box towards you.

Figure 22



With the motor access door open, gives access to the motor pulley.

Figure 23

Loosen the motor's lift and shift handle and lift the motor plate handle to give enough slack in the belt to enable it to be moved.

Daily after use

•Clean wood shavings away from the lathe bed and tool rest.

•Smear a light coat of wax (Protec Tool Wax Polish, Order no. 211835) over the lathe bed to allow the Banjo and Tailstock to run more smoothly over the bed and to prevent corrosion.

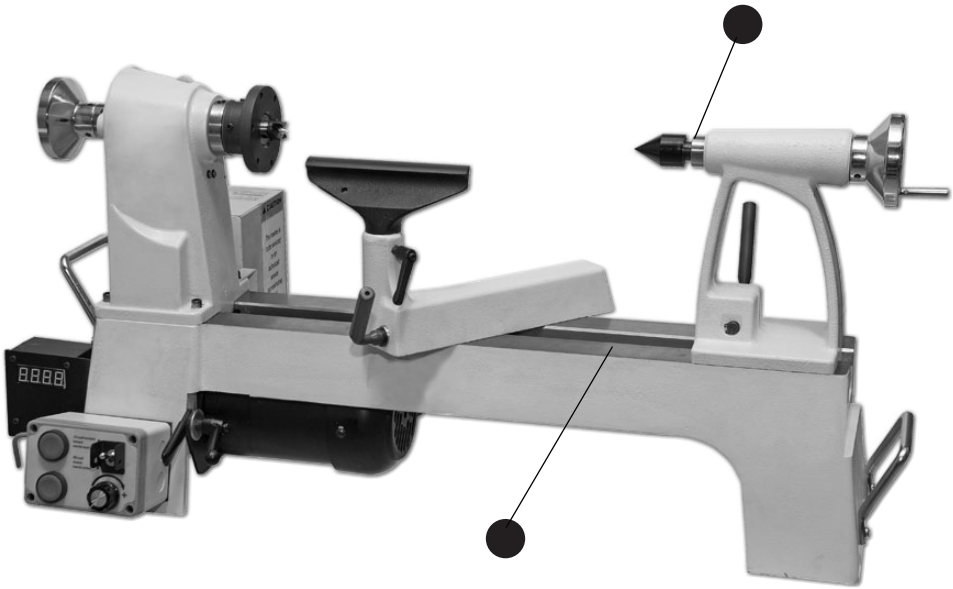
Monthly

•Check the tension of the belt and adjust, (See pages 11 & 12 for Changing the Belt Speed).

•Check any build up of wood shaving on the motor and spindle pulley's and clean if necessarily.

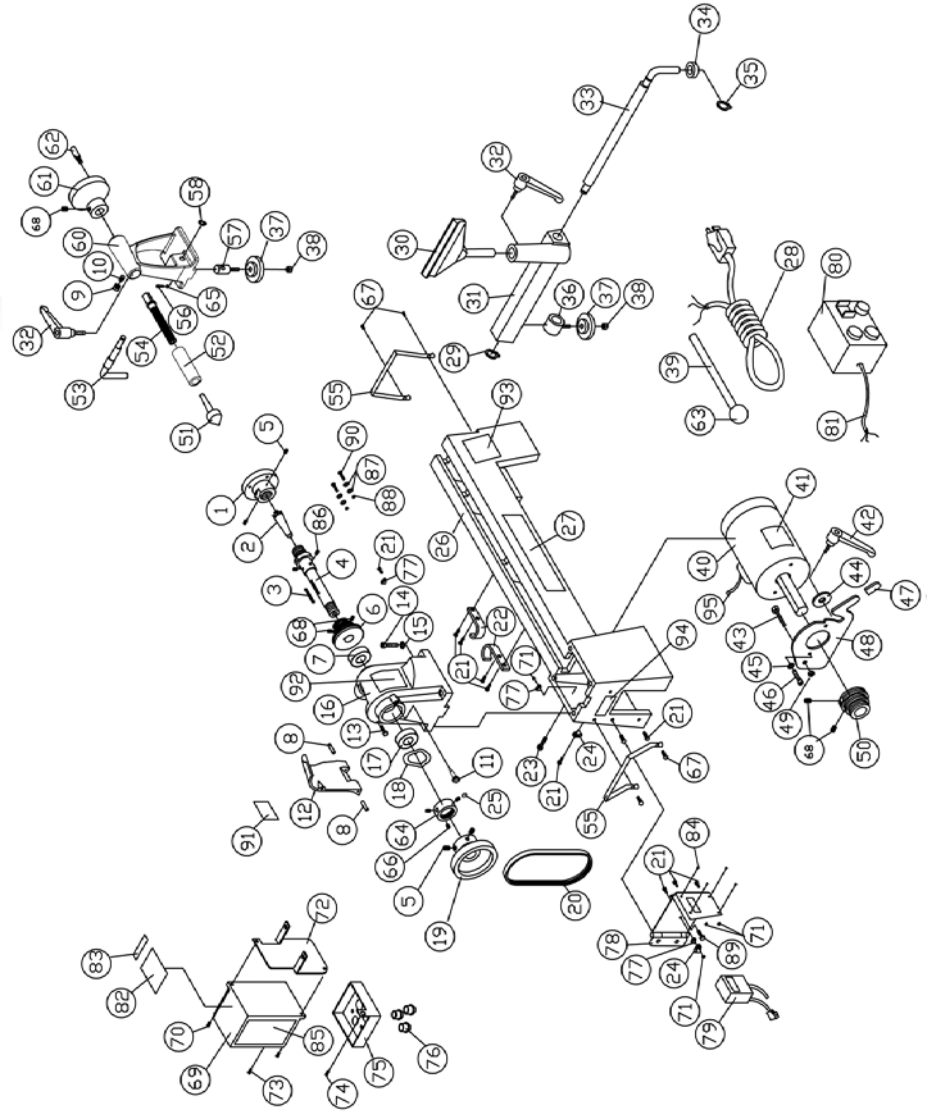
• Using an airline, blow out the motor's air vent.

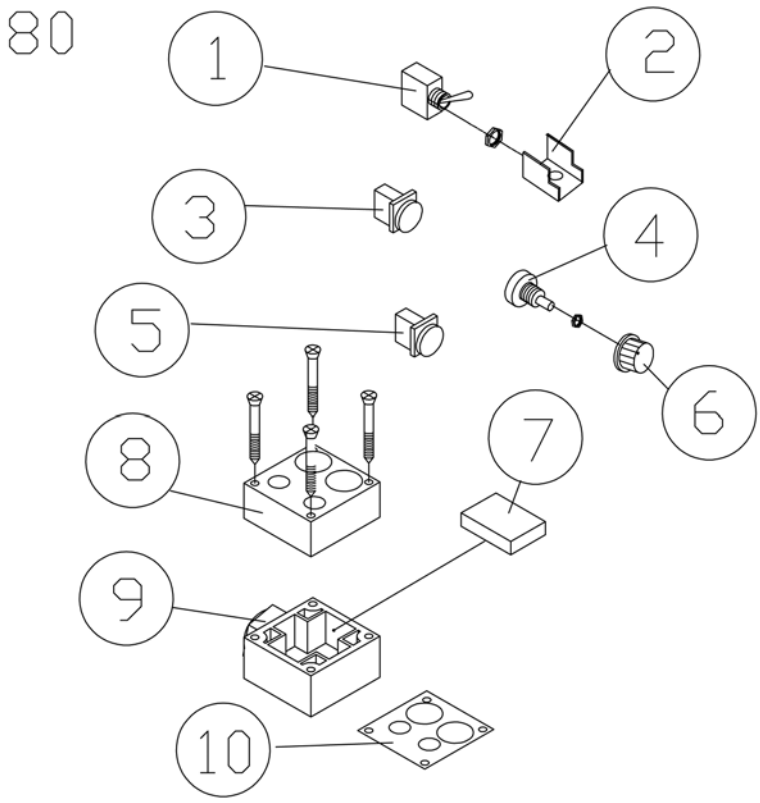
Note: If the lathe is not going to be used for a period of time, smear a light coat of wax over the bed and place a dust sheet (product code. 600410), over the lathe.



Wax Points

Parts Breakdown




80
1
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Parts List 1

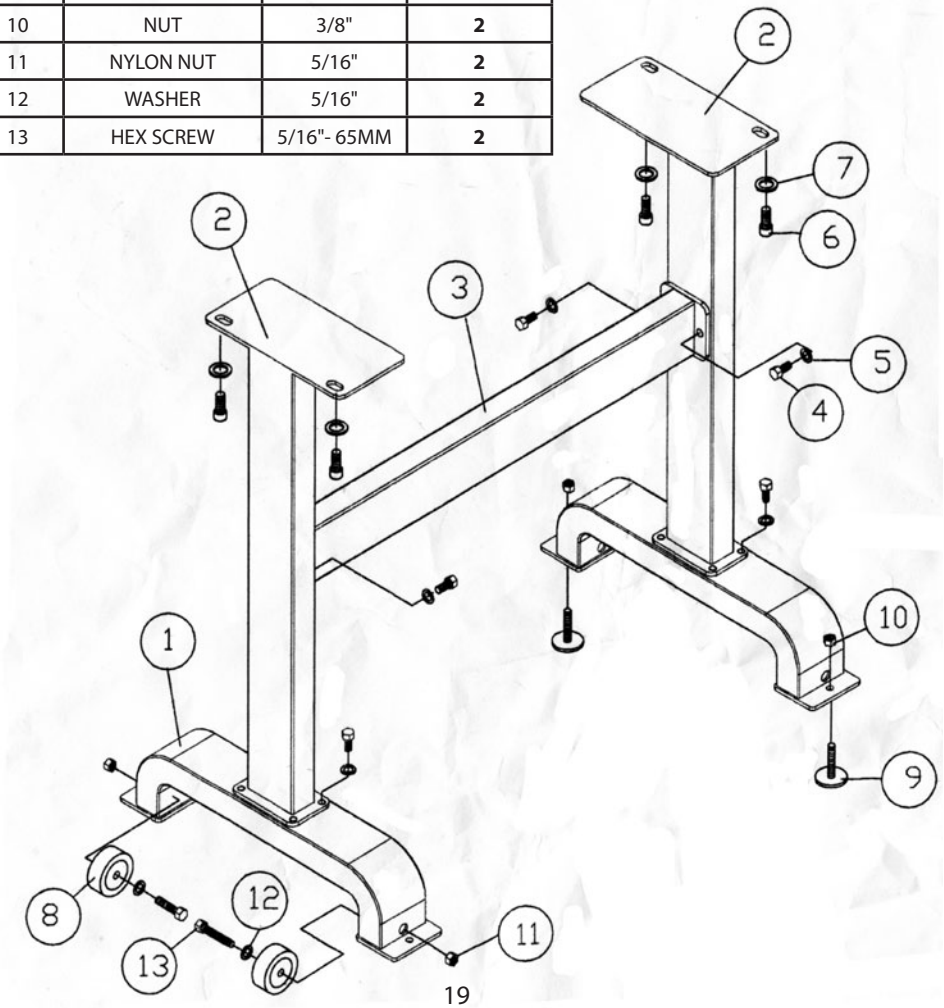
INDEX NO.	Description	Qty	Size
1	Face plate	1	3"
2	Spur Center	1	MT2
3	key	1	5*5*25
4	Spindle	1	M33XP3.5
5	SET SCREW	5	1/4-20*1/4
6	Spindle Pulley	1	4 SPEED
7	Bearing	1	6005
8	SET SCREW	2	3mmx16mm
9	NUT	1	M10
10	SET SCREW	1	M10*1.5P
11	Lock Pin	1	
12	Cover	1	
13	CAP SCREW	1	1/4*1/2"
14	CAP SCREW	4	1/4*1"
15	Spring Washer	4	1/4"
16	Head Stock	1	
17	Bearing	1	6004
18	Wave washer	1	S-18
19	Handwheel	1	
20	Belt	1	280J-4V
21	Screw	11	#10-24*5/16"
22	Cable Hook	2	
23	RoundCross Head Screw	1	#10-24*3/4"
24	Cord Snap Ring	2	
25	Magnet	1	
26	Bed	1	
27	Lable	1	
28	Power Cable	1	
29	C-Ring	1	S-12
30	Tool Rest	1	6"x1"
31	Tool rest base	1	
32	Locking Handle	2	5/16"X15MM
33	Clamping Shaft	1	
34	Bushing	1	
35	C-Ring	1	S-14
36	Clamp bolt	1	
37	Clamp	2	
38	Nut	2	M10*1.5P
39	shaft	1	
40	Motor	1	3/4HP-60HZ
41	Motor Lable	1	
42	Locking Handle	1	
43	Screw	1	5/16-18X1-1/4
44	Washer	1	5/16-厚3mm
45	Washer	2	1/4
46	CAP SCREW	2	1/4-20X5/8
47	black handle protector	1	

48	motor plate	1	
49	Nut	1	5/16-18UNC
50	Pulley	1	4 SPEED
51	Live center	1	MT2
52	Quill	1	
53	Clamping Shaft	1	
54	Lead Screw	1	
55	Handle	2	
56	Cap Screw	1	1/4"-20UNCX3/8
57	Clamp bolt	1	
58	C-Ring	1	S-10
59	Locking Handle	1	
60	Tailstock	1	
61	Handwheel	1	
62	Handle	1	
63	Knob	1	
64	Nut	1	
65	Nut	1	
66	Set screw	3	3/16"x1/4"
67	Round Head Screw	4	1/4"-20x5/8"
68	SET SCREW	5	1/4-20*3/8
69	Inverter	1	
70	Round Head Screw	2	
71	Nut	4	3/16"
72	Inverter board	1	
73	Round Head Screw	1	
74	Tapping Screw	1	
75	juncition box	1	
76	wire clamp	3	PG9
77	wire clamp	2	
78	readout board	1	
79	R.P.M readout	1	
80	Control Box	1	
80-1	Few/Rev Switch	1	
80-2	Switch Guard	1	
80-3	ON SWITCH	1	
80-4	VR	1	
80-5	OFF SWITCH	1	
80-6	VR Knob	1	
80-7	Magnet	1	
80-8	Control Box	1	
80-9	Strain Relief	1	
80-10	Label	1	
81	control wire	1	
82	Lable-big	1	
83	Lable-small	1	
84	TAPPING SCREW	4	
85	WARNING LABLE	2	

Parts List 3

86	SCREW	4	M4X6MM
87	WASHER	4	M3
88	NUT	2	M3
89	CAP SCREW	1	3/16-3/8"
90	SCREW	2	M3X30
91	Warning Label	1	
92	ID Label	1	
93	Warning Label	1	
94	Warning Label	1	
95	Motor Wire	1	

AW1416VS Lathe Stand (Product Code: 951248)			
1	LEG BASE		**1**
2	LEG SUPPORT		**1**
3	LEG BAR		**1**
4	HEX SCREW	1.4" - 1/2"	**12**
5	WASHER	1/4"	**12**
6	CAP SCREW	3/8"- 1"	**4**
7	WASHER	3/8"	**4**
8	WHEEL		**2**
9	FOOT	3/8"	**2**
10	NUT	3/8"	**2**
11	NYLON NUT	5/16"	**2**
12	WASHER	5/16"	**2**
13	HEX SCREW	5/16"- 65MM	**2**



Wiring Diagram

NOTE
If a filter is required for reducing EMI(Electro Magnetic Interference),install it as close as possible to AC drive.EMI can also be reduced by lowering the Carrier Frequency. When using a GFCI(Ground Fault Circuit interrupter),select a current sensor with sensitivity of 200mA,and not less then 0.1-second detection time to avoid avoid nuisance tripping.